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AUTHOR	Kasenally, Kursheed Ali
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ABSTRACT

This paper provides an overview of education for middle-management-level technicians at the Diploma Level in Mauritius. It describes the educational program provided by these three institutions: the Lycee Polytechnique Sir Guy Forget, Flacq; the Maharishi Dayanand Polytechnic; and the Institut Polytechnique de Rose Hill. It focuses on their courses, numbers of graduates, financial support, and recruitment practices. The paper concludes that the main challenge for Mauritius will be to prepare the stakeholders (including government, employees, workers, the institutions, and the trainers) for the technology-based work environment that will become necessary if Mauritius is to retain its competitiveness in the changing world market. The polytechnics aim to achieve this objective by continuously revising their training policies. (KC)

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Polytechnic Education in Mauritius

by Kursheed Ali KASENALLY

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1 General

There is an urgent need to train technicians in both the manufacturing and service sectors at middle management level. The availability of this workforce is critical to winning the competitive edge in the global market place. With this view in mind, the Mauritian Government has decided to expand Polytechnic Education and to offer fields of study which the country will need for its economic development. The courses offered are at Diploma Level. The University of Mauritius which initially offered Diploma Level Courses is now concentrating on the awards at Degree Level and research projects.

Polytechnic Education is offered by the following three institutions operating under the Technical School Management Trust Fund (TSMTF).

- Lycée Polytechnique Sir Guy Forget, Flacq
- Maharishi Dayanand Polytechnic
- Institut Polytechnique de Rose Hill.

The TSMTF was set up by an Act of Parliament in 1990. The TSMTF has been established to:

- Manage designated Technical Centres
- Organize courses
- Promote Technical Education
- To advise the Ministry of Education on plans for and research in Technical Education.

A Board of Trustees consisting of representatives from public and private sector agencies is in charge of the TSMTF and ensures autonomy and linkages with the private sector.

The three Polytechnics train para-professionals who are being called upon to train work force which operates at middle management level. This work force comprises two levels:

Level	Engineering Fields Manufacturing Sectors	Business-related Fields Service Sectors
1	Technicians	
2	Higher Technicians	Diploma Holders

Two Institutions have been set up with the collaboration of the French Government through the Mission de Coopération and other Funding Agencies like the Agence Française de Développement (AFD). The third Institution has been set up with the collaboration of the World Bank, Singapore Polytechnic and TAFE Western Australia. The Mauritian Government has in all three cases provided the building infrastructure and funds for annual Recurrent and Capital Expenditure.

2 The Lycée Polytechnique Sir Guy Forget, Flacq

The project for the creation of the Lycée was initiated in 1977 under a joint venture of the Fond Aide de Coopération (FAC) Convention between the French Government and Government of Mauritius.

The Lycée became operational in February 1982 after trainers followed nine-months training courses in French institutions. The trainers were supported by French Conseillers Pédagogiques and two dynamic Chef des Travaux and Directeur des Etudes.

Full time courses were run in the following fields:

- Automechanics
- Mechanical Production and Maintenance
- Electricity and Electrotechnics
- Building Construction.

The assistance of the French personnel has been a determining factor in the success of the institution. They have provided good support to the teaching and administrative staff. They worked with the Mauritian Staff in developing close links with enterprises. The original curricula have been constantly reviewed by Mauritian Staff after consultation with the enterprises with the result that nearly all the 2000 students who have completed their training course in this institution have been employed.

The equipment has been constantly updated from Funds made available by the Mauritian Government and the AFD through a loan. The updating of equipment and curricula is done through the Faculty/Industry Advisory Committees set up in each field of training. These committees are constituted of 50% of academic and enterprises personnel. The

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enterprises contribute to the extent of the preparation of a work force that is needed now and what is expected to be needed in the future. The strength of the training lies in the industrial attachment period which is about eight weeks annually. The private sector participates in the assessment of the students who are under their supervision during the industrial training.

About 75% of the Teaching Staff have followed nine-months training courses since 1994 in French Overseas Institution.

The training acquired has enabled the Mauritian Staff manage the institution. In house-training by experienced teaching staff and local experts is a regular feature.

Both the Recurrent and Capital Expenditure have gradually increased since 1992.

The student population is 400 with an annual intake of 100 to 180 for a three-year course.

3 The Maharishi Dayanand Polytechnic

This Institution offers two-year Diploma Course to school leavers who have successfully completed the Higher School Certificate.

For the initial take-off of the Polytechnic it was modelled on the experience of the Singapore Polytechnic which provided support in the following:

- make available and assist in adopting Singapore Polytechnic curriculum and learning materials to Mauritian requirements;
- advise and assist in establishing the courses, assessment criteria and certification system;
- undertake training of administrative and teaching staff;
- offer continuing professional guidance, interchange of experience.

Based on the Singapore Polytechnic experience and on requirements through field study carried out by consultants and local staff, the following courses were launched in 1995.

(i) Diploma in Business Administration (DBA) with options in:
   - Marketing
   - Financial Services

(ii) Diploma in Accounting (DAC)

(iii) Diploma in Information System (DIS)

A new Diploma Course in Business Informatics has been launched during this ongoing academic year.

The DBA and DAC curricula have been designed to train for work in computerised business environment. The DIS trains Analyst-Programmers.

The Maharishi Dayanand Polytechnic has also obtained the collaboration of Technical and Further Education (TAFE) International, Western Australia for continuing its mission. The curricula based on Singapore Polytechnic and TAFE models have been adapted to meet the local requirements.

The principle of tripartite participation has been applied in this institution governing its modus operanda.

This participation is operating at two supporting levels:

1. There is a Faculty/Industry Advisory Committee appointed by the Technical School Management Trust Fund which gives advice to the Polytechnic. The committee comprises people from the public and private sectors chosen in their capacities including professional in the technical field. The committee is inter alia responsible for:
   - Establishing course objectives, curriculum content, delivery modes
   - Establishing terminal standouts and certification
   - Prescribing training equipment, hardware and software
   - Prescribing training facilities and environment
   - Advising on industrial training attachments
   - Reviewing course results and diploma holders employment performance
   - Monitoring and reviewing market demand
   - Reviewing and upgrading courses.
2. At the technical level competent persons are drawn into working groups to establish assessment criteria, draw up tertiary schemes, design projects and proper programmes at staff training.

   The activities are monitored by TAFE International which provide the following services:
   - Quality Assurance
   - Moderation of Examination Papers and Scripts
   - Project Management
   - Infrastructure Support.

The Institution runs its two-year Diploma Courses on a Semester basis. There is an examination at the end of each Semester. These examinations are held under the supervision of the Mauritius Examinations Syndicate and are validated by TAFE International. A joint Maharishi Dayanand Polytechnic/TAFE International Diploma is issued to successful candidates. The qualifications are recognized in Australia for higher studies and are also equivalent to the Diploma Courses formerly run by the University of Mauritius and which have been taken over by the Polytechnic.

Here also the enterprises participate in the assessment of students by providing training programme and by the supervision of students during industrial attachment.

The number of graduates trained is:

Year	Number
1998	152
1999	69
2000	250 (approx.)

From a tracer study carried out by management, it has been observed that about 85% of those students who have graduated for the last two years have found employment. Based on these findings, the management through its Faculty/ Advisory Committee has decided to introduce a field of Accounting and Finance, instead of Accounting. Furthermore, to keep pace with the development in the field of Business, a new course in Business Informatics has been introduced. The curriculum has been worked out with Nanyang Polytechnic of Singapore but adopted to suit Mauritian needs.

4 Institut Polytechnique de Rose Hill

The project of creating a second Engineering Polytechnic is a joint French Government and Mauritian Government venture meant to support the existing one. Before deciding on the type and level of courses, various surveys have been carried out with:

- Chamber of Agriculture
- Mauritius Employers Federation
- Export Processing Zone and Development Authority (EPZDA)

These surveys have revealed that there was in 1994 an acute shortage of qualified para-professionals in high technology fields including automation. Furthermore, the surveys also revealed the urgency of in-service training courses in the fields mentioned above.

Based on these findings, the Mauritian Government came forward with the Institut Polytechnique de Rose Hill in 1994. The project consisted of two essential parts:

- Initial Training for school leavers
- In-service Training for those already employed.

The Mauritian Government has provided the building infrastructure of 7211². The French Government through its Mission de Coopération has provided:

- a grant for training of staff and for the provision of light equipment through FAC
- a loan for the purchase of heavy equipment and for the setting up of a Resource Centre to manage the In-Service Training Courses.

The construction of the building which started in 1995 was achieved in 1997. The heavy equipment arrived by mid 1998 and courses were launched in September 1998.

Meanwhile, since 1994 the management embarked on a Teacher-Training programme. By 1998, forty-nine members of Teaching Staff followed nine-month Teacher Training courses teaching in French institutions. These staff are thus equipped to teach both at Flacq and Rose Hill.

The Institut Polytechnique de Rose Hill is offering courses in three fields at Brevet de Technicien Supérieur level (BTS). These fields are:

- Génie Electrique et Informatique Industriel (GEII)
- Maintenance Automatisme Industriel (MAI)
- Génie Civil.

The training courses are organised in modules comprising both theoretical sciences and modules practical sciences based on the study of industrial systems, production projects and industrial attachment. Students will also have to prepare a project in consultation with the enterprises:

First Year	34 weeks i.e. 1024 contact hours 4 weeks of industrial attachment
Second Year	28 weeks i.e. 840 contact hours 6 weeks of industrial attachment 5 weeks for project writing

The intake is made up of students:

- from Lycée Polytechnique Sir Guy Forget, Flacq who have successfully completed their three year Technic ian course
- from students who have completed the Advanced Level in Maths and Physics

During the month of September to December of each year

- Students from Lycée Polytechnique Sir Guy Forget follow courses to strengthen their mathematical and scientific background

Advanced level students get familiarized to Technology, Industrial Drawing and Information Technology.

In January of each year these students are combined to follow a two-year course. Experience has shown last year that by May of the year, the two groups of student form a homogeneous group.

Each of these departments is headed by a French Conseiller Pédagogique who works with the close collaboration of the Mauritian teaching Staff through their Head of Department. There is a transfer of knowledge and teaching skills and the Mauritian staff is gradually taking over all the teaching duties as well as the maintenance of equipment.

Under the FAC grant specialists from French Institutions and enterprises have been training the Mauritian newly recruited staff.

Attached to this institution is a Resource Centre which is an important component. The Centre:

- manages In-Service Training in the three fields of study
- works in close partnership with industries and other training Centres with a view to preparing a data bank for all training courses available
- provide an up to date documentation Centre on latest technologies in Engineering fields.

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The strength of the Resource Centre lies in its partnership with enterprises. Various joint activities have been organized. For the academic year 1999/2000 fifteen short courses including three tailor made have been run.

The Polytechnic is now twinned to University of Limoges. The twinning will include

- Joint Diploma recognized in any French University for further studies
- Exchange of teachers
- Exchange of students for industrial attachment

This Polytechnic is thus set to become a leading institution in the area. There are requests for foreign students for e.g. from Comores to be admitted to this institution. With this new infrastructure the possibility of foreign students wishing to be admitted to this institution and the other Polytechnics exists.

5 Other Details

The three Polytechnics participate in job fairs where education providers as well as training providers help the user – students, adults to become aware of the opportunities available, contributing to the creation of seamless pathways for learners. These exercises are supported by a Career Guidance Service which is up-to-date with the ever changing industrial skill needs.

6 Conclusion

The main challenge for Mauritius will be to prepare the stakeholders which include government, employers, workers, the institutions and the trainers for technology-based work environment that will become necessary if Mauritius is to retain its competitiveness in the charging world market. The Polytechnics aim to achieve these objectives by continuously revisiting its training policies. This is done with the involvement of the stakeholders.

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The above paper has courteously been provided by:

Mr Kursheed Ali KASENALLY
Director, Technical School Management Trust Fund (TSMTF)
2nd Floor, Social Security House
Moka-Road
Rose-Hill
Mauritius
Phone [+230] 4 65 91 67
Fax [+230] 4 65 08 96
E-Mail: saabir@intnet.mu

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Produced in April 2000 at UNESCO-UNEVOC Berlin • Fehrbelliner Platz 3 • 10707 Berlin • Germany
Fax [+49] (30) 86 49 15 41 • info@unevoc.de • www.unevoc.de